Aquaculture
SARDI AQUATIC SCIENCES

The Aquaculture program provides scientific and technical advice across government, industry and the community on key issues associated with the sustainable development and management of aquaculture in brackish, freshwater and marine environments. The primary objectives of the program are: the development of new technologies, species and sites for aquaculture; enhancing the competitive advantage of existing aquaculture industries; and minimising the risks that new and existing aquaculturists may experience.

Overview

The Aquaculture program has existed since the inception of the South Australian Research and Development Institute (SARDI) in 1992, and has played an important part in the development of the South Australian aquaculture industry, which has increased in annual farm gate value from $200,000 in 1989 to nearly $246 million in 2008/2009. Organisms now farmed commercially in South Australia and on which research and development has been performed include: southern bluefin tuna (SBT), Pacific oysters, greenlip abalone, yellowtail kingfish, barramundi, microalgae, salmon, trout, mulloway, blue mussels, yabbies, marron and a range of aquarium species. These are farmed in the marine environment in sea cages and on longlines and racks, as well as onshore in recirculation systems, in flow-through raceways and tanks, and in static or low flow rate ponds.

SARDI conducts research and development with aquaculturists on their commercial farms and in smaller scale, more environmentally controlled, tank systems at the SARDI laboratories at West Beach. Other key facilities available to the Aquaculture program for research and development include: the Australasian Experimental Stockfeed Extrusion Centre (AESEC) and Nutrition Analytical Laboratories at Roseworthy, and the Food Safety and Innovation laboratories at Regency TAFE and Glenside.

The Aquaculture program has a long history of collaboration with industry, and other government agencies, as well as with researchers in the three South Australian universities.

Within SARDI, the Aquaculture program works closely with the:

- Marine Environment and Ecology program to address the interactions of aquaculture and the environment,
- The Food Safety and Innovation group to optimise the marketability of aquaculture products.

The Aquaculture program is led by Prof Xiaoxu Li and focuses its research in six interacting areas:

- Aquatic Animal Health and Welfare
- Genetics, Reproduction and Biotechnology
- Nutrition and Feed Technology
- Propagation and Aquaculture Systems
- Algal Production
- Algal Biofuels Facility

While the Aquaculture program focuses on the needs of South Australian clients, it has over the last five years also targeted a number of interstate and overseas

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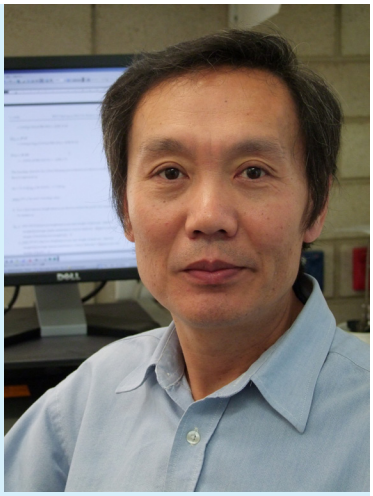
projects where these provide direct or indirect flow-on benefits to South Australia. Recent examples include: facilitating a feasibility study of yellowfin tuna aquaculture in Western Australia, enhancing the productivity of freshwater pond aquaculture in northern Vietnam, designing and project managing aspects of the construction of a new government aquaculture research facility in Singapore, and enhancing yellowfin tuna propagation and larval rearing in Indonesia.

The Aquaculture program also includes staff that are participants of the Australian Seafood Cooperative Research Centre (CRC).

Prof Xiaoxu Li
Science Leader



Prof Xiaoxu Li received a PhD degree from the Institute of Oceanology, the Chinese Academy of Sciences. He has extensive knowledge and experience in marine invertebrate genetics and aquaculture developed over 20 years working as a research scientist both in Australia and China. During this period he has managed more than ten projects funded by the national funding organisations (6 by FRDC) and numerous industry and state funded projects. He has published more 50 papers including book chapters, journals and reports.

His research has primarily focused on aquaculture genetics and shellfish aquaculture. This includes chromosome set manipulation, selective breeding, sperm and embryo cryopreservation, gender manipulation and bivalves aquaculture.

Prof Li has eight years experience as an acting department director in a leading institute of marine sciences in China and has supervised 25 postgraduate students.

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